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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,472	02/19/2002	Maitreyee Mahajani	40025-005	6706

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EXAMINER	
LE, THAO X	

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/079,472	MAHAJANI ET AL.
	Examiner	Art Unit
	Thao X. Le	2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2004*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,12-15,24,26 and 36-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9,12-15,24,26 and 36-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This application contains claims 3, 5-8, 23, 25, and 40-42 drawn to an invention nonelected with traverse in the amendment filed on 11/19/04. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 9, 12-15, 24, 26, 36-37 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6674138 to Halliyal et al.

Regarding to claims 9, 24 Halliyal discloses a method for making a SONOS device, comprising: providing a channel region 18, column 9 line 1, and providing a first oxide layer 28 on the channel region by ISSG process, column 10 line 33, providing a silicon nitride layer 30, column 1 line 41, on the first oxide layer 28, and providing a second oxide layer 32, column 8 line 63, on the silicon nitride layer 30, wherein the device is a SONOS.

With respect to nitride layer 30, Halliyal discloses structure 26 is a modified ONO (28/30/32) structure, column 8 line 27, that can be a combination of various materials including high k material is added to the nitride layer 30 of the conventional ONO, column 12 lines 15-20.The 'N' is silicon nitride in ONO (oxide-nitride-oxide) structure, column 1 line 41. Thus Halliyal either inherently or implicitly discloses nitride layer

Regarding claims 12-15, Halliyal discloses a method wherein the ISSG is performed at a temperature ranging from 700°C to about 1150°C, column 11 line 17, wherein the pressure ranging from 100 torr to about 300 torr, column 11 line 9, wherein the ISSG oxide layer 28 having the thickness of 10 to about 150 angstrom, column 11 line 65, wherein the transistor is a SONOS transistor, wherein the method further including annealing the oxide layer 18 in a nitric oxide atmosphere, column 7 line 39.

Regarding claim 26, Halliyal discloses an integrated circuit containing a SONOS semiconductor device made by the method comprising: providing polysilicon 16, column 10 line 3, providing a first oxide layer 28 on the silicon layer 16 by ISSG, column 10 line 33, providing a silicon nitride layer30, column 1 line 41, on first oxide layer, and

providing a second oxide layer 32, column 8 line 63, on the silicon nitride layer 30, wherein the device is a SONOS device.

With respect to silicon nitride layer 30, Halliyal discloses structure 26 is a modified ONO (28/30/32) structure, column 8 line 27, that can be a combination of various materials including high k material is added to the nitride layer 30 of the conventional ONO, column 12 lines 15-20. The 'N' is silicon nitride in ONO (oxide-nitride-oxide) structure, column 1 line 41. Thus Halliyal either inherently or implicitly discloses nitride layer

Regarding claims 36, 37, Halliyal discloses a method for making a SONOS device, comprising: providing a channel region 18, providing a first oxide layer 28 in contact with the channel region by an in-situ steam generation process, column 10 line 33, providing a silicon nitride layer 30, column 1 line 41, in contact with the first oxide layer 28; and providing a second oxide layer 32, column 8 line 63 in contact with the silicon nitride layer 30, fig. 1.

With respect to nitride layer 30, Halliyal discloses structure 26 is a modified ONO (28/30/32) structure, column 8 line 27, that can be a combination of various materials including high k material is added to the nitride layer 30 of the conventional ONO, column 12 lines 15-20. The 'N' is silicon nitride in ONO (oxide-nitride-oxide) structure, column 1 line 41. Thus Halliyal either inherently or implicitly discloses nitride layer

Regarding claim 38, Halliyal discloses an integrated circuit containing a SONOS semiconductor device made by a method comprising: providing a silicon wafer or silicon

layer 16, fig. 1, providing a first oxide layer 28 in contact with the silicon wafer or silicon layer 16 by an in-situ steam generation process, column 10 line 33, providing a silicon nitride layer 30, column 1 line 41, in contact with the first oxide layer; and providing a second oxide layer 32 in contact with the silicon nitride layers, fig. 1, wherein the device is a SONOS semiconductor device.

With respect to nitride layer 30, Halliyal discloses structure 26 is a modified ONO (28/30/32) structure, column 8 line 27, that can be a combination of various materials including high k material is added to the nitride layer 30 of the conventional ONO, column 12 lines 15-20. The 'N' is silicon nitride in ONO (oxide-nitride-oxide) structure, column 1 line 41. Thus Halliyal either inherently or implicitly discloses nitride layer.

Response to Arguments

4. Applicant's arguments filed on 03 Mar. 2005 have been fully considered but they are not persuasive. The Applicant argues that the layer 30 of Halliyal always includes a high-K dielectric, which cannot be silicon nitride. This is not persuasive because layer 30 of Halliyal is an ONO structure where 'N' is silicon nitride, column 1 line 41. Halliyal attempted to modify the ONO structure by using the high K dielectric material in combination with silicon nitride layer 30 in various embodiments as described in column 12 lines 15-22. Thus, layer 30 would comprise silicon nitride and would read on the claim limitation. It has been held that the use of the term "comprising" leaves a claim open for inclusion of material or steps other than recited in the claims. Ex parte Davis,

80 USPQ 448 (PTO Bd. App. 1948). Use of the term « comprising » does not exclude the presence of the element. In re Hunter, 288 F. 2d 930, 129 USPQ 25 (CCPA 1961).

5. The Applicant argues that claims 3, 5-8, 23, 25, and 40-42 should not have been withdraw from the consideration in the Office Action dated December 09, 2004. The Examiner respectfully submits that the species restriction of those claims were proper as explained in the Office Action dated 11/01/04 and subsequent Office Action dated 12/09/04.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thao X. Le
15 April 2005

LONG PHAM
PRIMARY EXAMINER